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# New evidences about human activities during the first part of the Upper Pleniglacial in Ukraine from zooarchaeological studies

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ABSTRACT

The Upper Pleniglacial, between 23 000–20 000 BP, is characterized by the intensification of cold climate and is followed by the maximum extent of ice sheets. There is a little bit information about the human activities during this period. New archaeological excavations in Ukraine permit to evidence data about behavioural human adaptations. These open air sites are on the one hand Pushkari 1 (excavation VII), Pogon (excavation VII) and Obollonia in the Desna valley and on the other hand Dorochivtsy III in the Dniester valley. These sites are characterised by atypical lithic industries made on local flint relied to the Gravettian but containing Epigravettian or Aurignacoid elements. In order to better understand the subsistence strategy we carried out zooarchaeological and taphonomical studies, which allow us to reveal the strategy of fauna exploitation by the human groups. We highlighted that all these sites are characterized by a restricted faunal spectrum with the presence of mammoth, reindeer, horse and carnivores (mainly fox [Vulpes vulpes and Alopex lagopus] and wolf). In the Dniester valley the reindeer was the most exploited, whereas the mammoth is the most exploited in the Desna valley. Indeed, it was probably hunt in Pushkari 1, maybe in Pogon and Obollonia. It was exploited as combustible, food resources and bones as raw material. In Dorochivtsy III/6 ivory was used to make tools and as artistic support. Indeed this site and Obollonia present grooved ivory points, this is the oldest occurrence of this kind of artefacts in the both regions. Moreover two engraved tusks presenting more or less figurative pictures were found in Dorochivtsy III/l.6 and Obollonia. The other large herbivores were also consumed and carnivores were exploited for their pelts in all these sites. The settlements are recurrent camps with little development occupied during varied seasons oriented to hunting and butchering activities linked with exploitation of local flint. These sites demonstrate the continuity of human occupations within the Eastern European plain, with the persistence of hunting methods and the relative diversity of animal exploitation, during the Upper Pleniglacial. These sites are really important for the understanding of cultural processes in the Eastern European Upper Palaeolithic, and particularly for the understanding of Epigravettian origin.



## 1. Introduction

This article focuses on the East European plain, delimited by the Urals, Caucasus and Carpathians Mountains and the Fenno-Scandinavian ice-sheet. Within this area, Ukraine has yielded numerous Palaeolithic archaeological sites.

The late middle Pleniglacial is marked by significant climatic deterioration shown by a tundra gley (Fig. 1), demonstrating active

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permafrost. In Eastern Europe, the interpleniglacial paleosols between 28 000 and 23 000 BP are known as Bryansk paleosols (Velichko and Morozova, 1972; Rusakov and Korkka, 2004). They correspond to Dofinovo paleosols as described by Ukrainian authors (Djindjian et al., 1999). The upper Pleniglacial, MIS 2, begins with loess following this gley (Haesaerts et al. 1998), about 26 000 BP. Climatic conditions deteriorate, and particularly after 23 000 BP, temperatures dropped and aridity increased. A large loess deposit covered Europe as far as the Mediterranean coast.

The subdivisions of this period vary according to authors. For some (Clark et al., 2001; Renssen et al., 2001) the upper Pleniglacial ends with the Bölling oscillation, at 13 500 BP and then transitions to the Holocene period. For others (Velichko and Kurenkova, 1990; Covalenco, 1995; Stepanchuk, 1999), the Ostashkovo phase, extends to 16 000 BP, with the maximum extension of the ice sheet between 20 000 and 18 000 BP, and is followed by the Late Glacial. According to the work of Haesaerts et al. (2003) and Borziac et al. (2005) the Pleniglacial is divided in three phases:

- The first part of the Upper Pleniglacial (26 000–20 000 years BP)
- The second part of the Upper Pleniglacial (20 000–14 000 years BP)
- The final phase of the Upper Pleniglacial, Holocene transition (14 000–10 000 years BP)

We are particularly interested in the beginning of the first part of Upper Pleniglacial. There is little information on the human activities during this period. Moreover, the transition between Gravettian and Epigravettian cultures took place during this time.

## 2. Archaeological sites

New archaeological excavations in Ukraine have yielded data about behavioural human adaptations. Here, we present information obtained on four open air sites: in the Desna valley with Pushkari 1 and Pogon (Pushkari complex), and Obollonia; and in the Dniester valley with Dorochivtsy III, recently excavated (Fig. 2).

### 2.1. The Desna valley

#### 2.1.1. Pushkari complex (Pushkari 1 and Pogon)

The archaeological complex of Pushkari is located in Eastern Ukraine near the village of Pushkari. It was discovered in 1932 by Rudinski (1947), on the right bank of the Desna river. A.J. Rudinski excavated the Pushkari 1 site (Paseka) in 1932 and 1933 (excavation I) (Rudinski, 1947). Then, excavations from 1937 to 1939 (excavations II, III, IV) were directed by Boriskovski (1949) and since 1981 by V.I. Belyaeva (excavations V, VI, VII). We focus here on the excavation number VII (42 $m^2$ excavations) identified by surveys made by Gribchenko in 1996, 1997 and 1998 and excavated by V.I. Belyaeva and P.M. Vasil'ev since 1998. Faunal remains recovered by A.J. Rudinski and R.I. Boriskovski were lost and the material of the excavation number V was destroyed by fire in the museum of Novgorod Severski in 2007.

The Pogon site, also called Pushkari 8, was discovered in 1940 by Voevodski (1950). M. V. Voevodski excavated the site in 1940 and 1946 (63 $m^2$). It has been excavated by P. M. Vasil'ev since 2011 (8 $m^2$) (Fig. 3).

The geological studies of Pushkari 1 and Pogon were conducted by Velichko et al. (1997, 1999) and Gribchenko (2006) (Fig. 7). These sites are characterized by one cultural level. The layers are located in thick loess deposits in a geological layer situated above the Briansk soil that corresponds to the end of the MIS 3. Therefore, the archaeological layers correspond to the beginning of MIS 2.

A bone from the archaeological layer of Pushkari 1 was dated to 16 775 ± 605 (OC 899) BP. However, Velichko (1961), Velichko et al. (1997) and Velichko and Zelikson (2005) thought that this date was questionable, too recent considering the stratigraphical context.

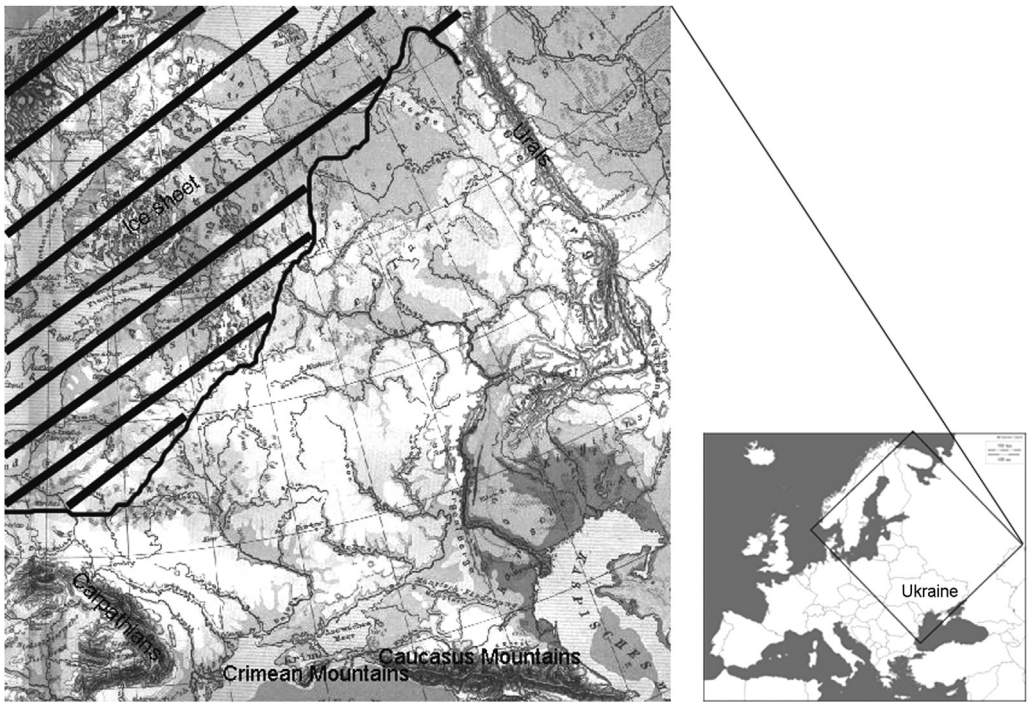


**Fig. 1.** Geographical context of Eastern Europe during the Upper Pleniglacial. (after Diercke Schul-Atlas für Höhere Lehranstalten, 1907).

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